REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 1, 5, 8 and 13 have been amended, and claim 14 has been added. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-14 are pending and under consideration. Reconsideration is respectfully requested.

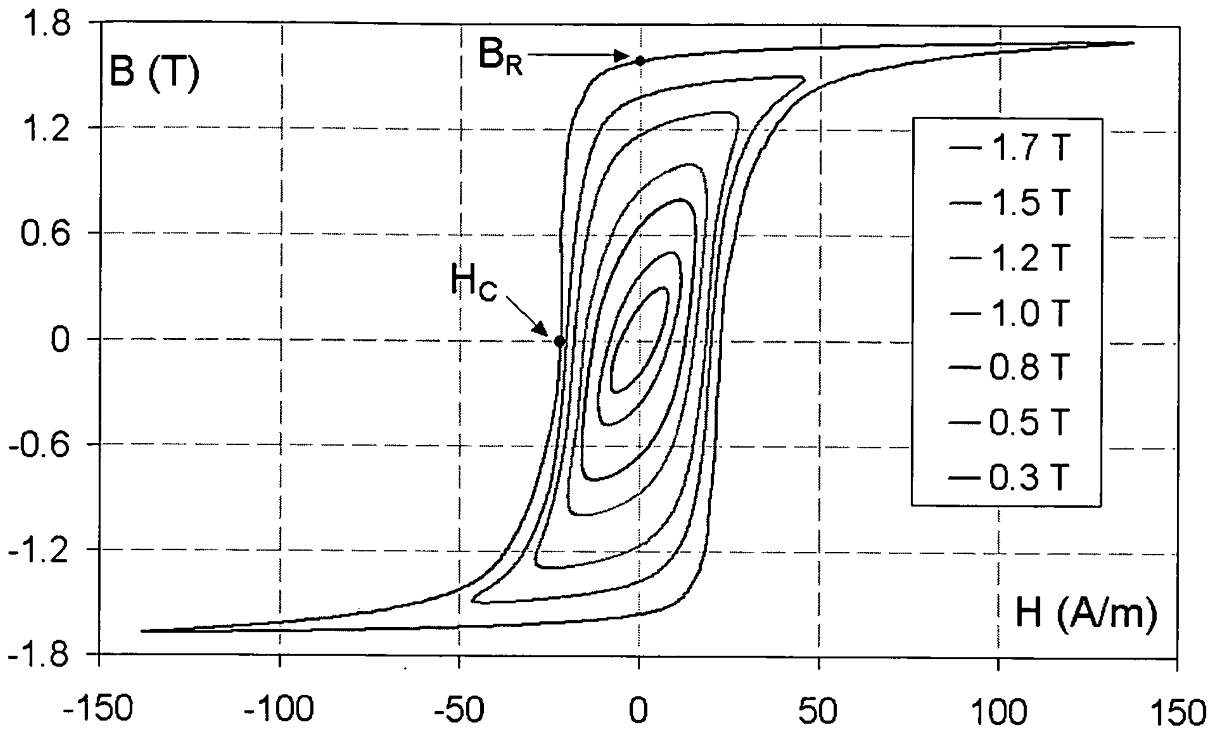
EXAMINER'S INTERVIEW ON FEBRUARY 1, 2008:

On February 1, 2008, Examiner Tuyen T. Nguyen met with inventor Dr. Ryusuke Hasegawa and the inventors' attorney Darleen J. Stockley and discussed the claims, including a new suggested claim 14. Applicants thank the Examiner for his careful consideration of the claims and for his suggestions.

It is respectfully submitted that, at the interview, Examiner Nguyen conceded that the AAPA does not disclose a non-gapped core. Dr. Hasegawa pointed out that the magnetic core of the present application is a critical difference between the AAPA and independent claims 1, 5, 8 and 13.

Although Examiner Nguyen suggested distinguishing by reciting a composition range of the core, it is respectfully submitted that the following approach is more appropriate. Applicants thank the Examiner for his suggestions.

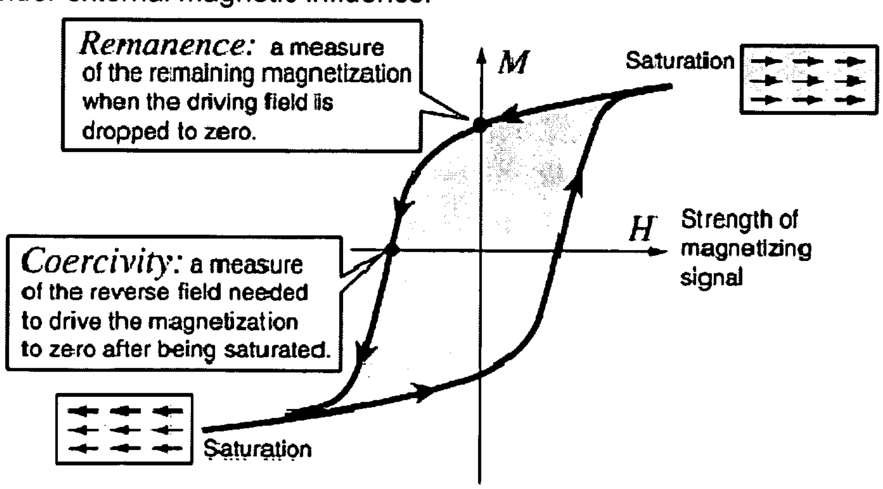
The following is provided as background: Remanence is the magnetization left behind in a medium after an external magnetic field is removed. It is denoted in equations as M_r. In engineering applications it is often assumed that the magnetization M is synonymous with the flux density B, and hence the remanence is denoted as B_R (see the image below).



The remanence magnitude can be taken from a hysteresis loop at the intersections of the loop with the vertical magnetization axis.

The value of remanence is one of the most important parameters characterizing permanent magnets.

Hence, remanence is the magnetic induction remaining in a magnetized substance no longer under external magnetic influence:



When a ferromagnetic material is magnetized in one direction, it will not relax back to zero magnetization when the imposed magnetizing field is removed. The amount of

magnetization it retains at zero driving field is called its remanence. It must be driven back to zero by a field in the opposite direction; the amount of reverse driving field required to demagnetize it is called its coercivity. If an alternating magnetic field is applied to the material, its magnetization will trace out a loop called a hysteresis loop. The lack of retraceability of the magnetization curve is the property called hysteresis and it is related to the existence of magnetic domains in the material. Once the magnetic domains are reoriented, it takes some energy to turn them back again. This property of ferromagnetic materials is useful as a magnetic "memory". Some compositions of ferromagnetic materials will retain an imposed magnetization indefinitely and are useful as "permanent magnets".

In addition to the written Interview Summary, although not recited in same, Dr. Hasegawa, Examiner Nguyen, and D.J. Stockley also discussed FIG. 1 (shown in the Abstract) of Nakagawa in comparison with the independent claims (claims 1, 5, 8 and 13) of the present application (wherein FIG. 3 shows the magnetization curves for a Fe-based alloy core according to the application and a prior art core based on a Co-rich amorphous alloy- it should be noted that Co is an expensive material, and hence, is not desirable in the present application). A Tesla is 10,000 Gauss or 10 kGauss (kG).

The DC coercivity, H_c, shown by Nakagawa is approximately 0.2 to 10 oersteds, and, as indicated in Table 1 of Nakagawa, is 0.8 to 14.0, with only a small permeability range of ± 2 mOe as stated in line 14, in column 6 of Nakagawa. This small range of applied magnetic field of ± 2 mOe is 1/100 of the smallest coercivity (0.2 Oe) and 1/50,000 of the largest coercivity (10 Oe), respectively of the Nakagawa core (see Nakagawa Claim 1).

In comparison, FIGs. 4A-4B of the present application show a constant permeability range of about 1000 kHz. Hence, the constant permeability range of Nakagawa is very small in comparison with the permeability range of the present application.

FIG. 5 of the present application shows the low resonance frequency shifts of the present application which are not achieved by prior art. See new claim 14.

Dr. Hasegawa pointed out, and the Examiner agreed, that, in accordance with FIG. 1 of Nakagawa, set forth below for the convenience of the Examiner, in comparing Nakagawa's FIG. 1 and the independent claims of the present application, it is clear that the squareness ratio (Br/Bs) of Nakagawa is 18 % or greater, whereas the squareness ratio of independent claims 1, 5, 8, and 13 of the present application is near 0 %:

【図1】

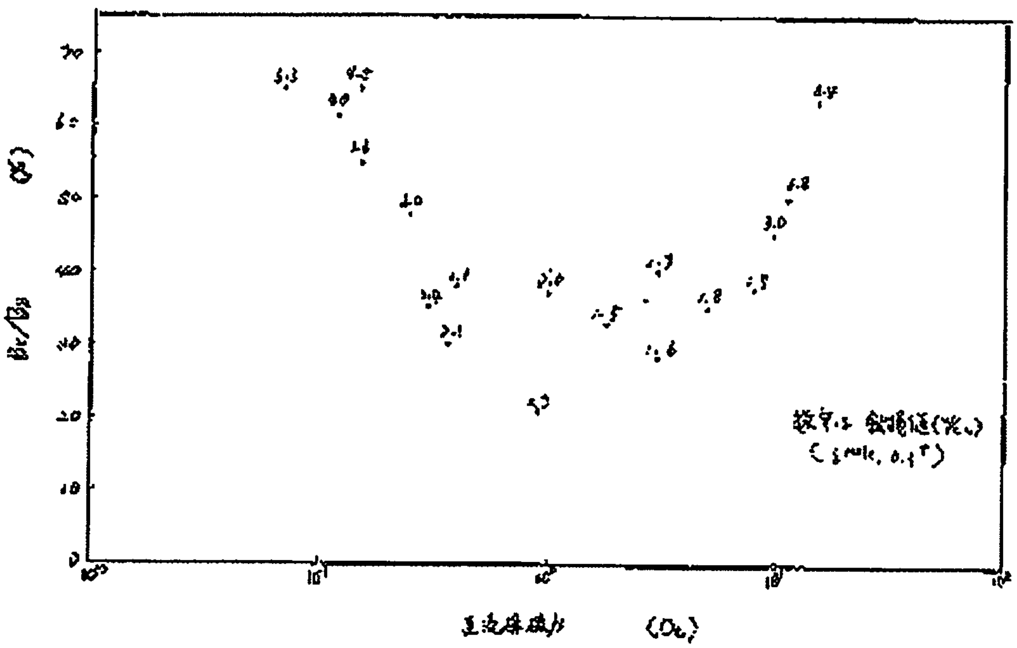


FIG. 1 of Nakagawa shows a plot of B_r/B_s with respect to coercive force in Oe(s). H_c is material-dependent, and B_r generally varies according to heat treatment. Thus, FIG. 1 of Nakagawa illustrates the variation of coercive force with respect to changes in the material composition (as listed in Table 2) and the squareness ratio. In FIG. 1, Nakagawa exhibits a minimum of approximately 18% squareness ratio (Br/Bs) (see also Table 2).

In contrast, FIG. 3 of the application, set forth below for the convenience of the Examiner, illustrates a BH loop of a core in accordance with amended independent claims 1, 5, 8 and 13 of the present application (wherein the material composition remains the same, the width of the BH loop approaches zero, and B_r approaches zero, so that the squareness ratio approaches zero over a field strength range of approximately -15 to +15 oersteds):

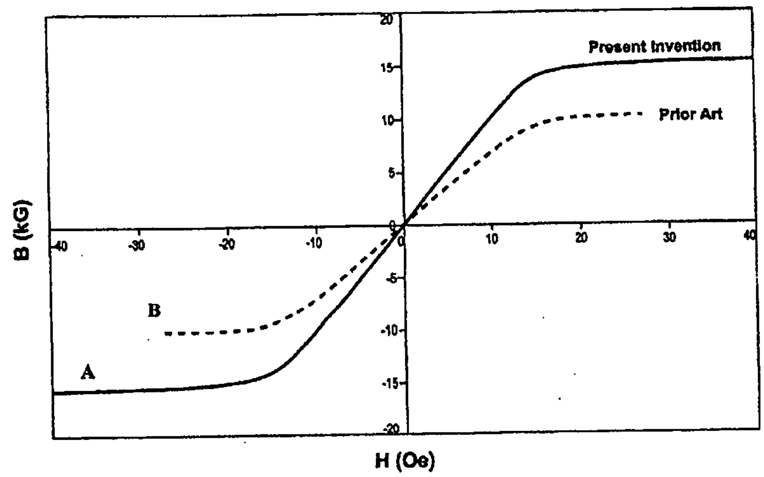


Fig. 3

Hence, FIG. 3 of the application illustrates that the BH loop of independent claims 1, 5, 8 and 13 of the present application has a squareness ratio that approaches zero remanence, i.e., approaches a Br/Bs value of zero, over a field strength range of approximately -15 to +15 Oe, which is not taught or suggested by Nakagawa or AAPA.

Thus, for clarity, independent claims 1, 5, 8, and 13 have been amended to include the terminology: "a linear BH loop having a squareness ratio that approaches zero over a field strength range of approximately -15 to +15 oersteds."

Thus, amended independent claims 1, 5, 8 and 13 disclose an inductor having a non-gapped core that consists essentially of an Fe-based amorphous metal alloy ribbon, a linear BH loop having a squareness ratio that approaches zero over a field strength range of approximately -15 to +15 oersteds, and has a constant permeability over a frequency range of about 1 to 1000 kHz, all of which are not taught or suggested by Nakagawa and/or AAPA, alone or in combination.

Hence, it is respectfully submitted that amended independent claims 1, 5, 8 and 13 of the present application distinguish over the cited reference Nakagawa (JP 06-151143) and AAPA. Since claims 4, 7, 11-12 and 14 depend from amended independent claims 1, 5, 8 and 13, respectively, claims 4, 7, 11-12 and 14 are allowable over Nakagawa and AAPA for at least the reasons amended independent claims 1, 5, 8 and 13 are allowable over Nakagawa and AAPA.

NEW CLAIM:

New claim 14 recites that the features of the present application include: "The filter of claim 1, wherein the center frequency of said filter has frequency shifts of less than 100 Hz up to the bias field of 15 Oe."

Nothing in the prior art teaches or suggests such. It is submitted that this new claim distinguishes over the prior art.

REJECTION UNDER 35 U.S.C. § 103 AND EXAMINER'S RESPONSE:

In the Office Action, at pages 2-4, claims 1, 4-5,7-8 and 11-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Nakagawa et al. (JP 06-151143; hereafter, Nakagawa). Further the Examiner provided his Response to Arguments for applicants' arguments filed July 3, 2007. The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

In view of the above amendments and arguments, it is respectfully submitted that the Examiner's concerns have been overcome and amended independent claims 1, 5, 8 and 13 are patentable under 35 U.S.C. §103(a) over applicants' admitted prior art in view of Nakagawa et al. (JP 06-151143). Since claims 4, 7 and 11-12 depend from amended independent claims 1, 5, and 8, respectively, claims 4, 7 and 11-12 are patentable under 35 U.S.C. §103(a) over applicants' admitted prior art in view of Nakagawa et al. (JP 06-151143) for at least the reasons amended independent claims 1, 5, and 8 are patentable under 35 U.S.C. §103(a) over same.

CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: February 19, 2008 By: Darleen J Stockley

Darleen J. Stockley
Registration No. 34,257

1201 New York Avenue, N.W.
Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501